

CLAIMS

1. A method of activating an electronic paint (10), comprising:
scanning a first embedded position marker (20) in a first portion (14) of an image (12) written onto a first portion of the electronic paint (10);
determining a position of an electronic brush (30) based on the scanned position marker (20);
modifying image data to embed a second position marker (26) in a second portion (16) of the image (12) based on the determined position of the electronic brush (30); and
writing the second portion (16) of the image (12) including the second position marker (26) onto a second portion of the electronic paint (10).
2. The method of claim 1 wherein determining the position of the electronic brush (30) includes comparing the scanned position marker (20) to unmodified image data, and determining the position of the electronic brush (30) based on the comparison.
3. The method of claim 1 wherein determining the position of the electronic brush (30) includes determining a plurality of position-marker elements (22) within the first embedded position marker (20), determining a position-marker element state for each position-marker element (22) within the first embedded position marker (20), and determining a marker position associated with the first embedded position marker (20) based on the position-marker element states.
4. The method of claim 1 wherein modifying the image data to embed the second position marker (26) in the second portion (16) of the image (12) includes manipulating at least one image pixel in a position marked region in the second portion (16) of the image (12).
5. The method of claim 4 wherein manipulating the at least one image pixel includes clearing a least significant bit within the position marked region and setting a coded bit state (56) within the cleared position marked region based on a position-marker location.
6. The method of claim 4 wherein manipulating the at least one image pixel includes clearing a least significant bit block within the position marked region and setting a coded bit-block state within the cleared position marked region based on a position-marker location.

7. The method of claim 1 wherein modifying the image data to embed the second position marker (26) in the second portion (16) of the image (12) includes determining a position-marker element state for a plurality of position-marker elements (22) within the second position marker (26), and adjusting the image data based on the position-marker element states.

8. The method of claim 1 wherein modifying the image data to embed the second position marker (26) in the second portion (16) of the image (12) includes determining a position-marker element state for a plurality of position-marker elements (22) within the second position marker (26), and adjusting the image data based on the position-marker element states and a position-marker mask (52).

9. The method of claim 1 further comprising:
determining a perimeter (24) of the first embedded position marker (20).

10. The method of claim 1 further comprising:
determining an orientation of the first embedded position marker (20).

11. The method of claim 1 further comprising:
scanning a plurality of embedded position markers (20) in the first portion (14) of the image (12); and
determining a rotation of the electronic brush (30) based on the scanned plurality of embedded position markers (20).

12. The method of claim 1 further comprising:
writing the first portion (14) of the image (12) onto the first portion of the electronic paint (10), the first portion (14) of the image (12) including the first embedded position marker (20).

13. A system for activating an electronic paint (10), comprising:
 - means for scanning a first embedded position marker (20) in a first portion (14) of an image (12) written onto a first portion of the electronic paint (10);
 - means for determining a position of an electronic brush (30) based on the scanned position marker (20);
 - means for modifying image data to embed a second position marker (26) in a second portion (16) of the image (12) based on the determined position of the electronic brush (30); and
 - means for writing the second portion (16) of the image (12) with the second position marker (26) onto a second portion of the electronic paint (10).
14. The system of claim 13 further comprising:
 - means for determining a perimeter (24) of the first embedded position marker (20).
15. The system of claim 13 further comprising:
 - means for determining an orientation of the first embedded position marker (20).
16. The system of claim 13 further comprising:
 - means for scanning a plurality of embedded position markers (20) in the first portion (14) of the image (12); and
 - means for determining a rotation of the electronic brush (30) based on the scanned plurality of embedded position markers (20).
17. The system of claim 13 further comprising:
 - means for writing the first portion (14) of the image (12) onto the first portion of the electronic paint (10), wherein the first portion (14) of the image (12) includes the first embedded position marker (20).

18. An electronic brush (30) for activating an electronic paint (10), comprising:
an electronic-brush housing (32);
an electronic-paint activation device (34) coupled to the electronic-brush housing (32);
an electronic-brush scanner (36) coupled to the electronic-brush housing (32); and
a controller (38) in electrical communication with the electronic-paint activation device (34) and the electronic-brush scanner (36); wherein a position of the electronic brush (30) is determined based on at least one embedded position marker (20) in a first portion (14) of an image (12) written onto a first portion of electronic paint (10) that is scanned by the electronic-brush scanner (36) and communicated to the controller (38), and wherein an electronic-paint write signal is sent from the controller (38) to the electronic-paint activation device (34) based on the determined electronic-brush position.
19. The electronic brush of claim 18 wherein the controller (38) is wired or wirelessly connected to the electronic-paint activation device (34) and the electronic-brush scanner (36).
20. The electronic brush of claim 18 wherein the electronic-brush scanner (36) includes an optomechanical scanner or at least one imaging array.